



# Introduction to Digital Accessibility

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21<sup>st</sup> October 2021



# Welcome

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This session will introduce the basics of digital accessibility.

- Live captions during the session – toggle on/off
- Slides, a transcript and recording will be made available
- Please use the Q&A window for questions
- Please use the chat window for general conversation
- Feedback form will be shared after the session



## About AbilityNet



*Strategies, standards,  
resources to make the Web  
accessible to people with  
disabilities*



# ICS NDA Web Accessibility Directive Training Series



-  **Introduction – EU Web Accessibility Directive** - 29<sup>th</sup> September 12-1pm
-  **Web Accessibility in practise** - 21<sup>st</sup> October 10.30am – 12pm
-  **Reviewing your website's compliance** - 27<sup>th</sup> October 12-1pm
-  **Creating accessible digital content** - 17<sup>th</sup> November 12-1pm
-  **Understanding Accessibility Evaluations and Testing Results** - 25<sup>th</sup> November 10.30am-12pm
-  **Accessibility for Copywriters** - 9<sup>th</sup> December 10.30am – 12pm



# Outline of today's training

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## What we aim to cover

- Gentle introduction to accessibility
- Why accessibility is important
- Inclusive design and accessibility
- Accessibility standards and why they're important for creating inclusive digital platforms

We will be pausing to **answer questions** throughout



## **Poll 1: Why have you come to today's training? (multiple choice)**

- General interest - to learn about digital accessibility
- Relevant to my work – I am employed in a digital role
- Relevant to my organisation – digital accessibility is on our agenda
- Digital accessibility advocate – I am checking my accessibility knowledge is up-to-date
- Other (please use the chat window)



**Accessibility is primarily about people and barriers to participation**

## Poll 2: Who is disabled here?



A



B



## Being disabled ≠ having an impairment

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Disability happens when  
barriers exist between  
people and their **environment**

## Social Model

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People are disabled by **barriers in society**, not by impairments or difference.

These barriers can be **physical** or caused by **people's attitudes** towards difference.

When barriers are removed, disabled people can be **independent, autonomous, and equal**.



## Digital accessibility

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People are disabled by **inaccessible digital products**.

Accessibility is the ability for **everyone to access and benefit** from something, such as a website or app.

Accessibility is about finding and dismantling the **barriers to entry and use**.



## Meet Adi

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# Impairment types that can affect access

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**Motor**



**Vision**

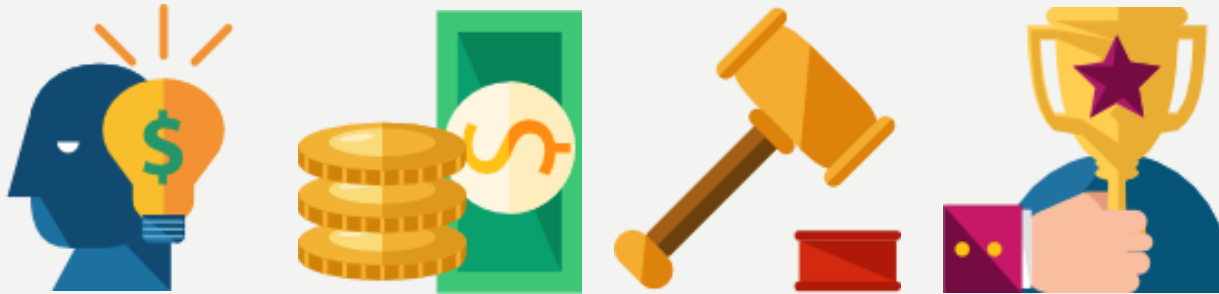


**Hearing /  
Communication**



**Cognitive /  
Learning**

## Business and Legal Context



## Business

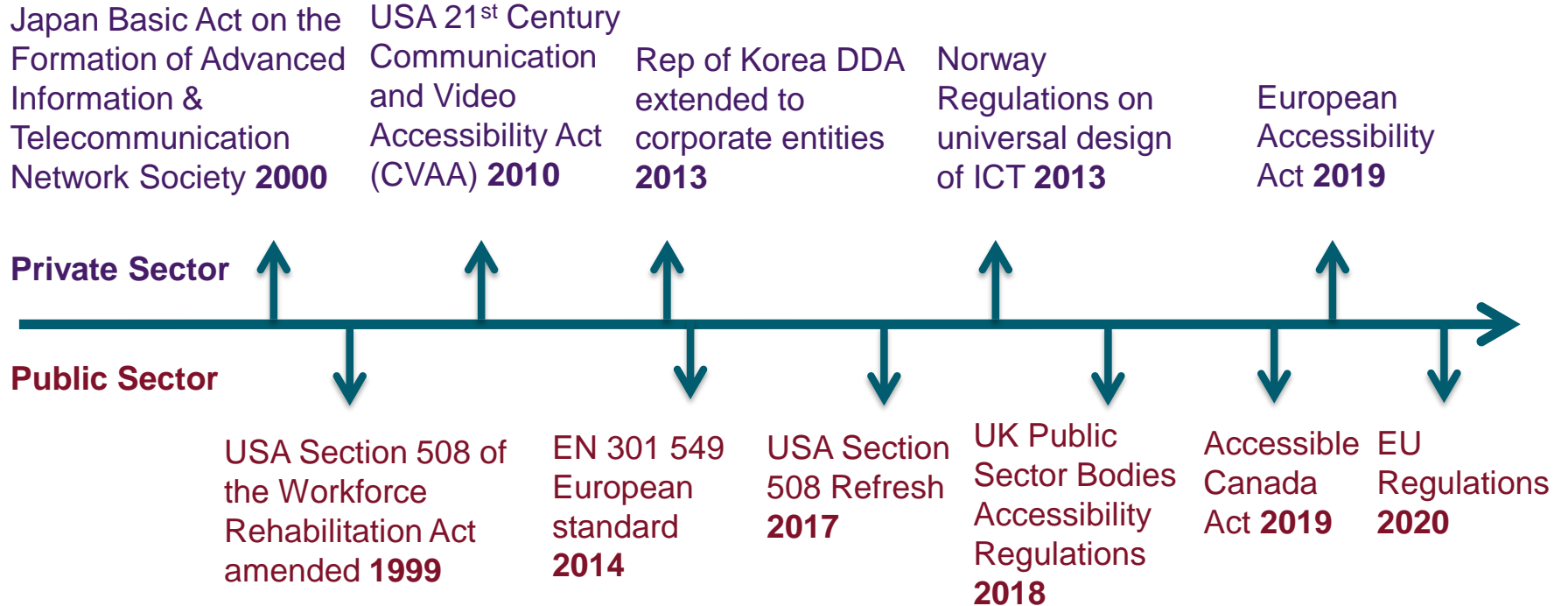
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- On average **15% of the world's population is disabled**
- 80% of disabled people are of working age
- The purple pound is worth **over £274 billion a year** in the UK
- Disabled people are the fastest growing minority group
- 75% of disabled people say UK businesses are losing out because their digital products and services are not designed well enough for them.

[Big Hack, Business Case for Inclusive Design](#)



# Legal





## European Union Directive 2016

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- European Union Directive 2016
- Applies to most public sector organisations
- Websites and mobile apps must meet **WCAG 2.1 Level AA**
- Applies to most types of content (e.g. office file formats, videos, forms, etc.)
- Must have an accessibility statement

















# Inclusive Design and Accessibility

## **Poll 3: Which of these accessible solutions have you used before? (multiple choice)**

- Ramps
- Keyboard navigation
- Dropped kerbs
- Screen reader
- Subtitles or captions
- Speech recognition
- Browser zoom
- None of the above

# Impairments not always permanent

	Permanent	Temporary	Situational		Permanent	Temporary	Situational
Touch	 One arm	 Arm injury	 New parent	Hear	 Deaf	 Ear infection	 Bartender
See	 Blind	 Cataract	 Distracted parent	Speak	 Non-verbal	 Laryngitis	 Heavy accent

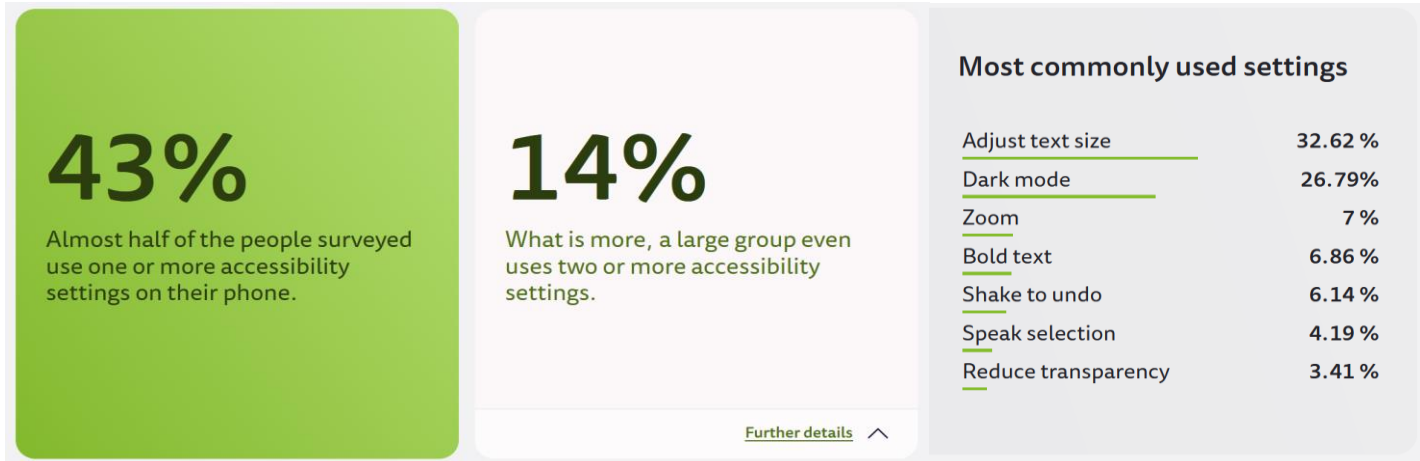
Addressing potential barriers for all will help everyone.

# Designing inclusively

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- Who is your user?
- Including disabled people in research, testing, personas
- [Microsoft inclusive design toolkit](#)
- Usability / accessibility

# “We don’t have any disabled users”



[Study by Dutch agency Q42](#)



# Accessibility Standards



# Accessibility Standards

## Why?

Web content will work as expected across the web and different devices, browsers etc.

## How?

Developed by international experts

## What?

“Success criteria” - testable statements: pass/fail

Accessibility standards cannot cover all aspects of accessibility

# WCAG

## Web Content Accessibility Guidelines (WCAG) 2.1 Level AA



# Useful accessibility terminology

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## Semantic mark-up:

HTML that adds meaning, not just visual presentation

```
<html>

<h1>This is a Heading</h1>
<p>This is a paragraph.</p>
<p>This is marked as <b>important</b>
in this paragraph</p>

<ul>
<li>This is a list item</li>
<li>This is another list item</li>
<li>This is yet another list item</li>
</ul>

</html>
```

## This is a Heading

This is a paragraph.

This is a paragraph. I'm the **important bit** in this paragraph

- This is a list item
- This is another list item
- This is yet another list item

## Examples:

- Headings
- Paragraphs
- Emphasis
- Lists

# Programmatically conveyed?

ROSES BY CATEGORY —

- Shrub Roses 22
- Climbing & Rambling Roses 3
- Standard Tree Roses 10


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KEY FEATURES —

- New Varieties 11
- Highly Recommended 20
- Highly Fragrant 151
- Abundant Flowering 22
- Particularly Healthy 15

★ BEST FOR FRAGRANCE

**GABRIEL OAK**  
English Shrub Rose  
£19.50 - £27.00



3L Potted Climbing Red Rose 'Dublin Bay' Fragrant RHS Award of Garden Merit

★★★★☆ ∨ 25 ratings

Price: **£15.99**

# Useful accessibility terminology

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## WAI-ARIA

- Web Accessibility Initiative – Accessible Rich Internet Applications
- Complex websites and components may not be straightforward HTML (Ajax/JavaScript)
- WAI-ARIA adds markup which tells assistive technology what elements are and do.



## **Poll 4: Have you ever tested a website, document or digital content for accessibility?**

- Never
- Seen accessibility reports but have not done testing
- Done a few simple tests
- Confident doing accessibility checks

# Accessibility Principles: POUR

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**Perceivable:** Content is presented in ways that can be accessed by all



**Operable:** Content is presented in ways that can be operated by all



**Understandable:** Content is presented in ways that can be understood by all



**Robust:** Content is reliable and compatible with assistive technology and standards



# Perceivable

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**1.1 Text Alternatives** e.g. alternative text on images

**1.2 Time-based Media** e.g. captions on video, audio descriptions

**1.3 Adaptable** e.g. form field labels and headings

**1.4 Distinguishable** e.g. colour contrast

# Perceivable example guideline

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## 1.1.1: All non-text content that is presented to the user has a text alternative that serves the equivalent purpose

except for the situations listed below.

- Controls, Input...
- Time-Based Media...
- Test...
- Sensory...
- CAPTCHA...
- Decoration, Formatting, Invisible...

## Perceivable: Alternative text (1.1.1)

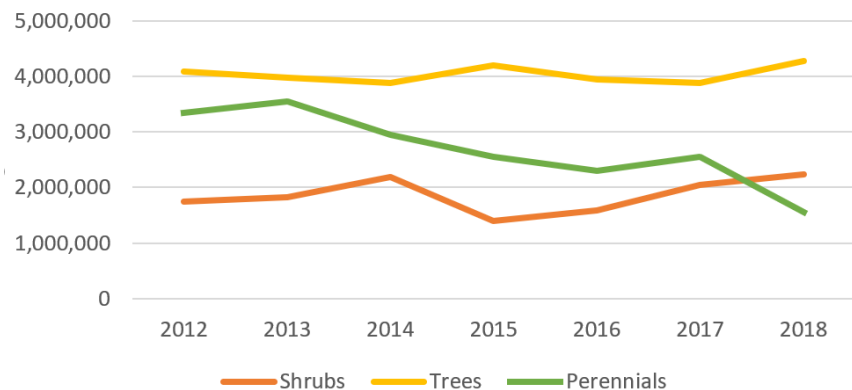
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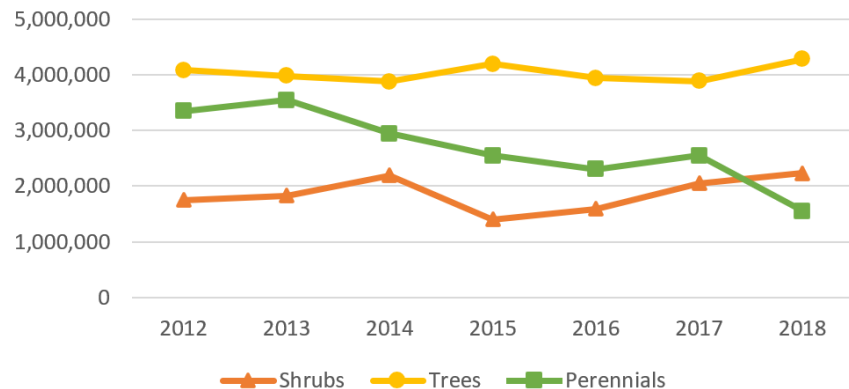
```
<img alt="Tulips"  
src=http://...2231456.jpg>
```

# Perceivable: Use of colour (1.4.1)

Plant sales by year

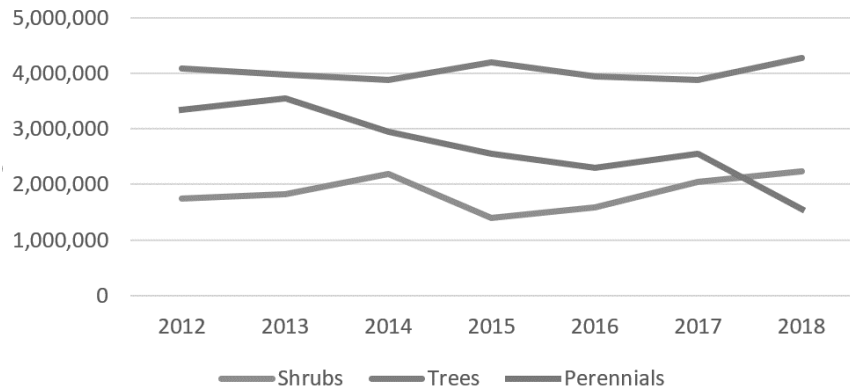


Plant sales by year

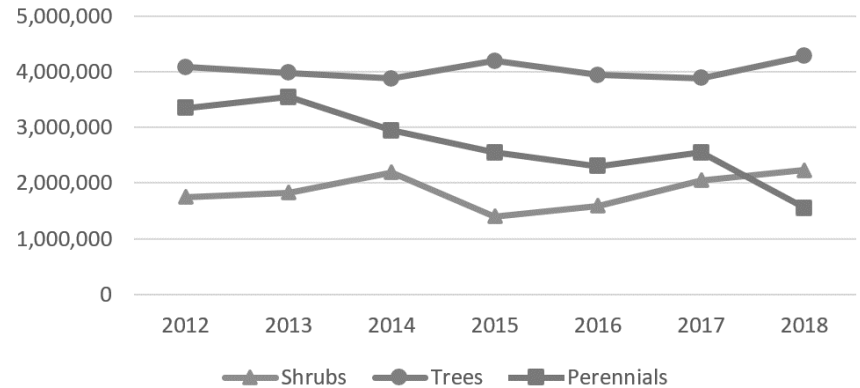


# Perceivable: Use of colour (1.4.1)

Plant sales by year



Plant sales by year



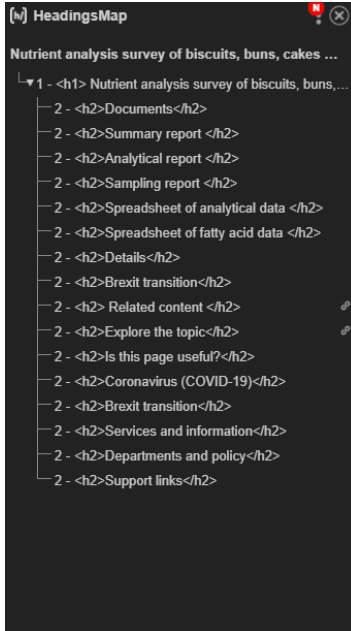
## Perceivable: Colour contrast (1.4.3)

- We are more reliant on higher contrast as we age
- Bright lights and sunlight make it more difficult to read low contrast
- Some people may be unable to distinguish certain colour combinations

	Contrast Ratio
Text contrast examples	21:1
Text contrast examples	1.6:1
Text contrast examples	5.4:1
Text contrast examples	4.2:1
Text contrast examples	2.9:1
Text contrast examples	7.2:1

**Text should have a contrast greater than 4.5:1 with background colour**  
**Large text and graphical elements should have contrast greater than 3:1**

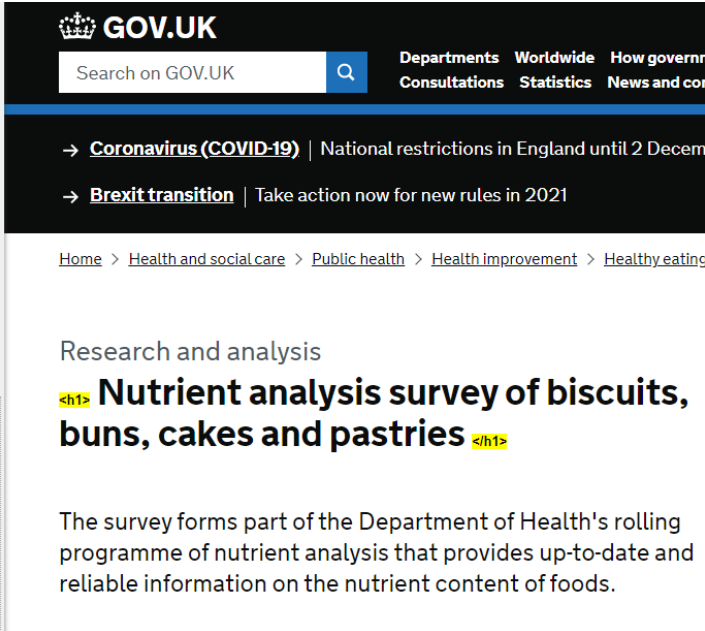
# Perceivable: Heading structure (1.3.1)



HeadingsMap

Nutrient analysis survey of biscuits, buns, cakes ...

- 1 - <h1> Nutrient analysis survey of biscuits, buns, cakes ...
- 2 - <h2> Documents </h2>
- 2 - <h2> Summary report </h2>
- 2 - <h2> Analytical report </h2>
- 2 - <h2> Sampling report </h2>
- 2 - <h2> Spreadsheet of analytical data </h2>
- 2 - <h2> Spreadsheet of fatty acid data </h2>
- 2 - <h2> Details </h2>
- 2 - <h2> Brexit transition </h2>
- 2 - <h2> Related content </h2>
- 2 - <h2> Explore the topic </h2>
- 2 - <h2> Is this page useful? </h2>
- 2 - <h2> Coronavirus (COVID-19) </h2>
- 2 - <h2> Brexit transition </h2>
- 2 - <h2> Services and information </h2>
- 2 - <h2> Departments and policy </h2>
- 2 - <h2> Support links </h2>



GOV.UK

Search on GOV.UK

Departments Worldwilde How govern  
Consultations Statistics News and cor

→ **Coronavirus (COVID-19)** | National restrictions in England until 2 Decem

→ **Brexit transition** | Take action now for new rules in 2021

Home > Health and social care > Public health > Health improvement > Healthy eating

Research and analysis

**Nutrient analysis survey of biscuits, buns, cakes and pastries**

The survey forms part of the Department of Health's rolling programme of nutrient analysis that provides up-to-date and reliable information on the nutrient content of foods.

## Typical issues:

- Formatted headings not marked up as a heading semantically
- Headings used for styling
- Skipped heading levels
- No headings

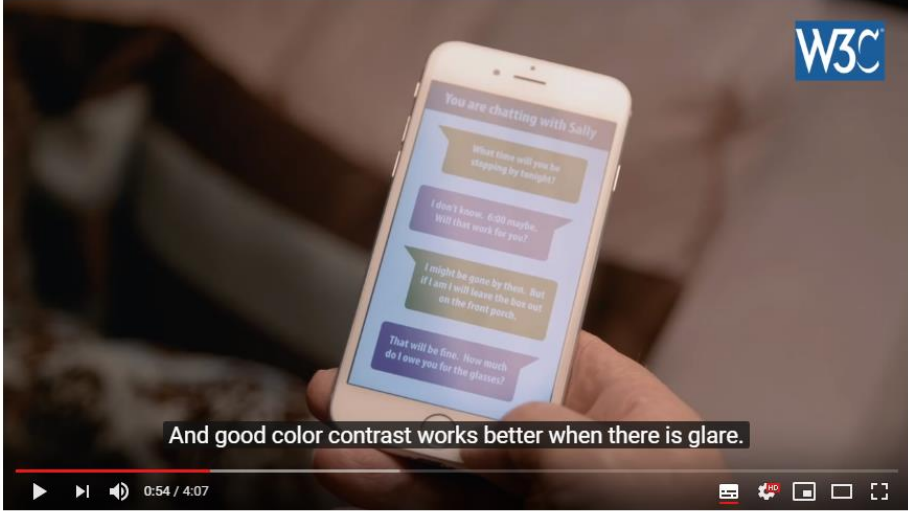
## Perceivable: Captions (1.2.2)

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# Automatic captions are improving



The video player shows a hand holding a smartphone displaying a chat conversation. The chat messages are: "What time will you be stepping by tonight?", "I don't know. 6:00 maybe. Will that work for you?", "I might be gone by then. But if I am I will leave the box out on the front porch.", and "That will be fine. How much do I owe you for the glasses?". A subtitle at the bottom of the video reads: "And good color contrast works better when there is glare." The W3C logo is visible in the top right corner of the video frame.

**Transcript**

00:40 Or someone who cannot see well, and uses a screen reader to read aloud what's on the screen.

00:46 Accessibility has many benefits.

00:48 For example, captions benefit anyone in a loud or in a quiet environment.

00:54 **And good color contrast works better when there is glare.**

00:58 Also people with age-related impairments, such as reduced dexterity, benefit.

01:04 In fact, everyone has a better user experience with an improved layout and design.

01:09 A lot of accessibility can be built into the underlying code of websites and applications

English ▾

Up next AUTOPLAY

**Change Text Direction in Word 2007/2010**  
gillicelt5  
0.54K views

Introduction to Web Accessibility and W3C Standards  
60,260 views

341 11 SHARE SAVE ...

W3C Web Accessibility Initiative (WAI)

# Operable

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**2.1 Keyboard Accessible** i.e. all content can be accessed without a mouse

**2.2 Enough Time** e.g. users are warned if they are about to be logged out

**2.3 Seizures and Physical Reactions** e.g. content will not cause seizures

**2.4 Navigable** e.g. focus indicator is visible

## Operable example success criteria:

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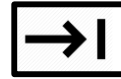
### 2.1.1 All functionality of the content is operable through a keyboard interface

without requiring specific timings for individual keystrokes, except where the underlying function requires input that depends on the path of the user's movement and not just the endpoints.

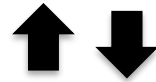
# Keyboard only techniques

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- Move through interactive elements: **Tab** key / **shift +Tab** to move back
- Activate button: **Space** or **Enter** key
- Activate link: **Enter** key
- Scroll page: **up/down arrows**
- Move through selection lists and menus **up/down arrows** or **Tab** key



space





## Poll 5: (Activity) Choose a website and use the tab key to move around the home page.

- Can you access the navigation menus?
- Can you access the search box?
- Is there an indicator telling you where you are on the page (focus indicator)?
- Do you get stuck anywhere?
- Any other problems?
- **Give your website a score out of 5**

# Understandable

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## 3.1 Readable

e.g. define language of content (but not reading level)

## 3.2 Predictable

e.g. consistent navigation & consistent identification

## 3.3 Input Assistance

e.g. error messages on forms are accessible to all

## Language of page

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3.1.1 The default human language of each Web page can be programmatically determined. (Level A)

```
<!DOCTYPE html>  
<html lang="en"  
▶ <head>...</head>
```

# Understandable: Predictable and consistent

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Search or zoom ?



Back or undo?



## Understandable success criteria

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3.3.1 If an [input error](#) is automatically detected, the item that is in error is identified and the error is described to the user in text.



# Form errors – typical problems

- No indication of required fields
- Errors indicated only by colour
- Error messages don't provide enough support
- Error messages are not linked to the fields they refer to

OK: Username:  ✓

Error: Expiry date:  Use the format MM/YYYY.

## Citylights Survey

This Week's Survey: More city parks - a pain or a gain?

Which is your favorite city park?

- |                                    |                                     |
|------------------------------------|-------------------------------------|
| <input type="radio"/> None         | <input type="radio"/> Jurassic Park |
| <input type="radio"/> Central Park | <input type="radio"/> South Park    |
| <input type="radio"/> Grand Park   | <input type="radio"/> Other         |

Which city do you find is the greenest?

Do you want to receive a free newsletter?

No title provided for your name.

Name:  Mr.  Mrs.

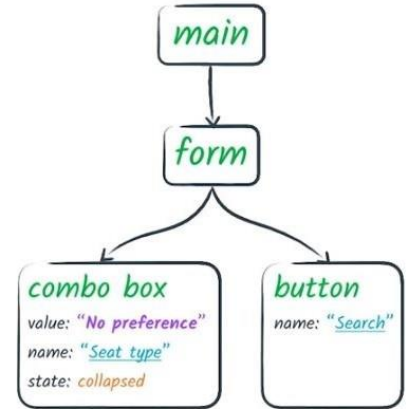
eMail Address

Retype eMail

# Robust

## 4.1 Compatible

- Name, role, value
- Status messages
- Parsing
  
- **Ensure the accessibility information is correct and can be communicated programmatically to the user**

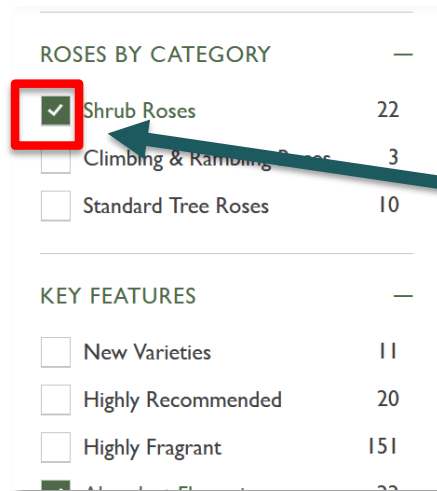


## Name, role, value for components

What is it for? = **name**

What can it do? = **role**

What is the  
current state? = **value /  
state**



Name = "Shrub roses"  
Role = Checkbox  
State = Checked

Designers / UX should consider programmatic as well as visual experience

## Most common accessibility issues

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- Insufficient colour contrast or use of colour for meaning
- Missing alternative text on images
- Lack of keyboard access
- Missing focus indicator
- Missing form field labels and inaccessible error messages
- Incorrect heading structures
- No captions, transcripts or audio descriptions on videos



```
<img  
src=http://garden.org.uk/im  
ages/02937575948.jpg>
```

See [WebAIM One Million](#) study



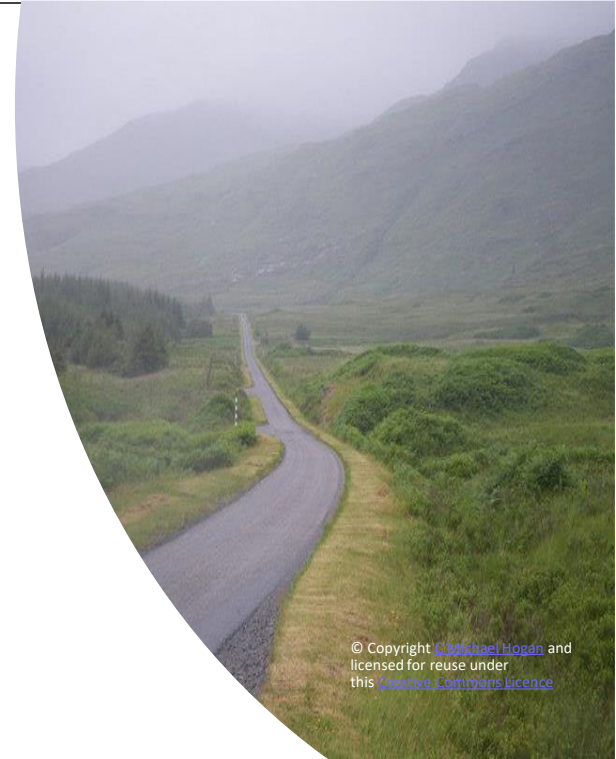
# How do you make accessible products and services?

# Accessibility is a journey, not a destination

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Embedding accessibility:

- Requires policies, processes and quality assurance
- Has design, content, procurement and technical implications
- Will involve staff from across the organisation



# Many people are responsible for digital accessibility

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- (Project) Managers
- Designers
- Content creators
- Developers
- Testers / Quality Assurance
- Procurement
- Senior managers





## Five stages of accessibility acceptance:



**Denial:** “It can’t be important, no one complains. People don’t use assistive technology with our site.”



**Anger:** “It’s not my problem. Don’t tell me how to do my job.”



**Bargaining:** “I can do a hack without having to do this properly.”



**Depression:** “You expect me to meet ALL these requirements.”



**Acceptance:** “Ok we see what needs to be done and we are working on a strategy.”

